

REMARKS

Claims 28, 29 and 64 are all the claims pending in the application, including new claim 64 added by the present Amendment.

35 U.S.C. § 112, First Paragraph

Claims 28 and 29 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention.

Claims 28 and 29 claim methods of fabricating a hologram-recorded medium which is an imagewise or other pattern-recorded medium comprising a collection of pixels, and in which any one of a plurality of volume type diffraction gratings comprising volume holograms and differing from each other is assigned to at least a part of said pixels. Embodiments of these methods are described in the present specification on pages 56-59, for example. In particular, page 56, lines 18-22, describe the patterns recorded in the photosensitive material 107 as comprising a group (or collection) of pixels. The cited excerpt is believed to be self-explanatory and to clearly describe embodiments of the claimed methods. Thus, the specification is believed to clearly describe the methods of claims 28 and 29 in such a way as to enable one skilled in the art to make and use the invention without undue experimentation. Therefore, one of ordinary skill in the art would know how to make and use the invention claimed in claims 28 and 29.

35 U.S.C. § 112, Second Paragraph

Claim 29 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite, due to a typographical error. Applicants amend claim 29 to correct the error, thereby overcoming this rejection.

35 U.S.C. § 103(a)

Claim 28 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hopwood (US 4,915,464) in view of Minami (US 5,372,900). Applicants respectfully traverse this rejection in the following manner.

The Examiner admits that Hopwood fails to explicitly teach that the holograms recorded are volume holograms or that a reflection type master hologram is a relief hologram. Instead, the Examiner asserts that it would have been obvious to one of ordinary skill in the art to have used volume holograms and relief type holograms, because these types of holograms are well known in the art and because the specification does not indicate the criticality of using these types of holograms.

The Examiner asserts that since both volume holograms and thin holograms are known types of holograms distinguished only by the fringe size compared to the thickness of the recording plate, it would have been an obvious matter of design choice to produce the hologram as a volume hologram. As the Examiner correctly recognizes, there are different classifications for holograms. However, the holograms are not interchangeable as the Examiner contends, as the holograms are created in fundamentally different ways. In thin holograms, the fringes are formed two-dimensionally as changes of surface irregularity. By contrast, in volume holograms,

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fringes are recorded three-dimensionally in the hologram. Accordingly, the difference between holograms in Hopwood and that of the present invention is not merely fringe sizes, but a fundamental difference in recording fringes.

Accordingly, the use of volume holograms and relief holograms cannot simply be read into the claim without a suggestion or motivation to do so from the prior art. Moreover, the Examiner has not asserted such a motivation or suggestion. Therefore, claim 28 is believed to be allowable over the prior art for at least these reasons.

Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Molteni et al. (US 5,473,447) in view of Moss et al. (US 5,016,953). Applicants respectfully traverse this rejection as set forth below.

The Examiner admits that Molteni does not explicitly disclose that the produced hologram is a volume hologram, but asserts that using computer generated holograms is very well known in the art. Applicants respectfully submit that claim 29 is allowable for the same reasons regarding a lack of teaching of volume holograms as claim 28 discussed above.

Also, the Examiner admits that Molteni fails to explicitly disclose that the transmission master hologram comprises a computer generated hologram. Instead, the Examiner cites Moss as disclosing computer generated holograms. However, the Examiner's only alleged benefit of combining these references is having an alternative way of making the master hologram, and such an alleged benefit is not a motivation or suggestion to combine the references.

The Examiner cites the recording plate 37 of Molteni as the master hologram. This recording plate is produced in the manner described at col. 13, line 61 - col. 14, line 25 of the

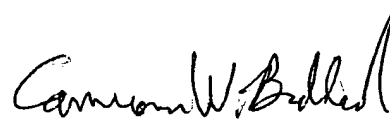
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reference. Thus, Molteni provides its own way of making a master hologram. Furthermore, there is no suggestion that using the computer generated hologram of Moss would be an improvement over the disclosure of Molteni. Accordingly, since Molteni discloses its own method of making a master hologram, and since using the computer generated hologram of Moss only appears to provide a possible alternative, rather than an advantage over Molteni's method, there is no suggestion or motivation to combine the references. Therefore, claim 29 is believed to be allowable over the prior art for at least these reasons.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

29. (Four Times Amended) A method of fabricating a hologram-recorded medium which is an imagewise or other pattern-recorded medium comprising a collection of pixels, and in which any one [o] of a plurality of volume type diffraction gratings comprising volume holograms and differing from each other is assigned to at least a part of said pixels, the method comprising:

stacking a photosensitive material, capable of recording a volume hologram, on a transmission type hologram,

striking reconstructing illumination light of given wavelength on a first side of said transmission type hologram that is opposite a second side of said transmission type hologram which is facing said photosensitive material, so that interference fringes produced by interference of light diffracted from said transmission type hologram and reference light incident on said photosensitive material are recorded in said photosensitive material, wherein said transmission type hologram comprises a computer generated hologram (CGH).

Claim 64 is added as a new claim.